A STUDY TO ASSESS THE EFFECTIVENESS OF NURSE LED COGNITIVE STIMULATION PROGRAM (NLCSP) ON COGNITIVE FUNCTIONS AND QUALITY OF LIFE AMONG ELDERLY IN SELECTED RURAL COMMUNITY OF PANIPAT, HARYANA

SYNOPSIS SUBMITTED

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Background of the Study

Introduction

"Gold agers are our worthy blessing

Value and assist them to live with dignity"

Ageing is natural unrestrictive and irreversible process. In this there are changes in various dimensions which include physiological, mental, social and conceptual. Elders are generally defined as individual 60 year and older. Process of ageing not only effects the older persons, but it also has remarkable effect on families as well as on society. Ageing residents are growing at very fast rate in all over the world. According to Indian Ageing Report (2017) globally, the elderly residents constitute about 12% of the total population of 7.3 billion. The number of elderlies will increase twice by 2050, and approximately will get up to 2 billion and contribute for about 22% of the global population, outnumbering those under the age of 15 for the first time in history[1].

"Normal" aging is actually very different from diseases but yes with age there is decrement in various system of the body[2]. Each individual is unique in their physical and mental aging processes. And as per biological school of thought of aging, there is loss in number of cells along with changes in enzymatic activities going in cell. Age is not a speedy activity it usually goes by its own flow and rhythm but ultimately affect all cardiovascular, respiratory, musculoskeletal, gastro-intestinal, endocrine, immune, genitourinary, sensory and immune system[3]

Cognition simply means to the psychological processes and activities related to understanding things, making judgment, memory and reasoning in comparison to emotional and volitional process[4] (Sharotch & Hales, 2003). With aging, there is an definite loss in number and functioning of neurons, which correlates with lessen in brain weight of about 10% by age 90 years (Murray et.al., 2009). Not only there is loss in brain weight but also there is decrease or declining in memory, intellectual functioning, learning ability or it is to be said that aging is not a curse but

it makes person physically, psychologically, socially and economically weak. Old age is the age of cognitive impairment.

As cognitive function starts lessening from the age of 50 and speeding after the age of 65 years. The decrement of this cognitive function (attention, memory, orientation and executive function) is known as cognitive impairment which change overall personality of the individual. Cognitive function diminishing affect activities and daily life of the person. Cognitive impairment in senior citizen has a number of causes. Theses causes may include medication side effects, hypertension, metabolic /endocrine derangement, depression, delirium due to inter current illness, depression and dementia with neurodegenerative disorders and some idiopathic causes or unknown [5]

Alzheimer's dementia being most common cognitive impairment in elderly has number of sign and symptoms[5.] These patients face difficulty in holding attention both divided and selected , fall of processing speed, difficulty in organizing the task, decrease in ability of decision making skills , memory problems, difficulty in finding right words to express oneself, losing thinking and thoughts and even social withdrawal which eventually affect their activities of daily living. Cognitive impairment can be classified in to various levels such as mild, moderate and severe based on the amount of impairment.

Cognitive dysfunction may vary from seriousness or severe category to from the relatively benign mild cognitive impairment (MC-I) to dementia. Cognitive impairment if severe, may worsen the life of both gold agers and their families. It is not possible to ignore variation in an gold agers attention, memory or overall personality or to suppose a result of growing age. The prevention and treatment of cognitive impairment in senior citizen has been an important need

and responsibility of the health sector area. Currently approved medication for neurodegenerative disorders has discouragingly small effect on cognition and on diseases progression[6].

Apart from the pharmacotherapy, there are other approaches and programs like occupational therapy, environmental approach, brain training, dietary plan, executive cognitive structuring program and cognitive stimulation therapy found effective in improving cognitive functions.[7]

Cognitive stimulation has been defined as "engagement in a range of activities and discussion (usually in a group) aimed at general enhancement of cognitive and social functioning (Clare & Woods 2004, p.387). Cognitive stimulation therapy has been popular, cost effective and successful for improving memory function. It is themed based multi component therapy which focuses on cognitive abilities and can be given by the professional nurses, an occupational therapist or a care giver. Each session in it will cover a unique theme and topic.[8]

National institute for clinical excellence recommended cognitive stimulation therapy as it is non pharmacological approach as well as it is group based intervention which can be easily carried out in nursing homes, old age home or in community (Mamnet)

A testing has been done in twenty-three homes and day care setting and result proved that cognitive stimulation therapy is fruitful to restructure and build the intellectual power and memory ability as similar as can of medicinal treatment given for loss or for treating the symptoms related with loss of memory.[8]

Cognitive stimulation therapy significantly improves both Standard of life and mental ability in senior resident having dementia. Enhancement in cognition by cognitive stimulation therapy were similar for those seen in studies of acetyl cholinesterase inhibitors[9] (Spector A. Thergrmsen woods B et. al).

Thus, it becomes very important to assess the cognitive fall in gold agers and to identify the problem they facing related to this which will provide the proper direction to plan cognitive stimulation programs and progressive strategies for gold agers thereby improving and boosting their mental health and overall standard of living in community.

Need of Study

Indian society is facing a significant jump in senior occupants. India is expected to have more than 19% elderly by 2050[1]. According to census report 2011, total 25,350,000 public resides in Haryana State of India among which about 12,02,811 number of people belong to district Panipat (Haryana) again in which 61% population is only of senior citizen mainly living in rural areas. Not only the number of 60 plus population has increased but also the age expectancy has been improved people are living even longer and are confronted with disability and fragility[10]

Gold ager involve number of issues like physical, psychological , economical and social. Poor health diminish the quality of life and wellbeing of gold agers. Giri, et.al (2016) reported that prevalence rate of the decline cognitive function is very high in old age. Intellectual declines becomes more common in old age and for an increase number of people and also it constrain with daily function and wellbeing.[11]

Decline in cognitive functioning has been related to age and is considered as precursor to more severe condition like depression and dementia. And the prevalence rate of decline cognitive function is 8.8% found in North India which recommend to focus on Geriatric health services and boosting of cognitive status should be added as prior care within the normal primary health care structure.[12]

Elliott, Horgas, and Marsiske (2008) reported that assessment of cognitive impairment for diagnosis of potentially reversible condition and initiation of treatment intervention is needed. and

There is number of psychological test and inventory which are useful in identifying this condition. Trained health care worker and professional nurses those give care to vulnerable person in a number of setting found to be in central locale to notice and discover variation in cognitional changes in gold agers.[13]

Elderly care or gold ager care is the accomplishment of special needs and requirements that are unique to senior citizen. So there is need that mental health of the gold agers can be brush up through promoting active and healthy ageing. Also there is need to boost their mental health and incorporate successful cognitive ageing by refining their cognitive functioning and many studies have shown evidence and supported cognitive stimulation therapy for improve the cognitive abilities and function.

According to clinical observation by investigator personally assume that there is requirement to provide care in the geriatric area to gold agers to strengthen their ability mentally as well as physically and planned to develop a cognitive stimulation program. The aim of this Nurse Led CSTP (Non-Pharmacological Intervention) is to 1) Stimulate the cognitive function (Attention, concentration, memory and executive functioning) in gold agers, 2) To refine their Quality of life, 3) To build up and strength their mental health.,4) To develop a self-help group.

STATEMENT OF THE PROBLEM

Effectiveness of Nurse Led Cognitive Stimulation Program (NLCSP) on cognitive functions and quality of life among elderly in the selected rural community of Panipat, Haryana

AIM OF THE STUDY

1.To gain understanding about the cognitive functions and quality of life among elderly population

2. To promote and strengthen the cognitive functioning and quality of life among elderly

STUDY OBJECTIVES

PRIMARY OBJECTIVES

1. To explore problem related to the decline cognitive functions among elderly and their care givers
2. To develop and implement Nurse Led Cognitive Stimulation Program (NLCSP)
3. To assess the effectiveness of Nurse Led Cognitive Stimulation Program (NLCSP) on cognitive functions and quality of life among elderly.

SECONDARY OBJECTIVES

4. To determine correlation between cognitive functions and quality of life among elderly in the selected rural community
5. To find out association between cognitive function, quality of life and selected demographic variables among elderly in the selected rural community.

HYPOTHESIS

The hypotheses will be tested at 0.05 level of significance :-

H_1: There will be significant improvement in the cognitive functions of the elderly after undergoing Nurse Led Cognitive Stimulation Program as measured by Mini Mental Status Examination.

H_2: There will be significant improvement in the Quality of life of elderly after, undergoing Nurse Led Cognitive Stimulation Program as measured by QOL-AD Scale of Quality of life

H_3: There will be significant correlation between cognitive function and quality of life among elderly in selected rural community**.**

H_4: There will be significant association between cognitive function and quality of life with selected demographical variables among elderly.

ASSUMPTIONS

1. The sample will be true representation of target population

2. Elderly in selected community may have decline cognitive status and want to participate in Nurse led cognitive stimulation program

OPERATIONAL DEFINITIONS

1.Effectiveness:- It refers to determining the degree to which the Nurse Led Cognitive Stimulation Program (NLCSP) helps the elderly to improve their cognitive functions and Quality Of Life (QOL) as measured by Mini Mental Status Examination and QOL-AD Scale.

2.Cognitive functions:-It refers to intellectual process in elderly by means of which they perceives, become aware of and comprehends ideas. In current study following cognitive functions i.e. attention, orientation, memory, executive functions, language and judgment will be measured by using Mini Mental Status Examination.

3. Elderly:- In this study , elderly refers to those who are of aged 60 years and more and having cognitive impairment(Score:11-23) as measured by using MMSE.

4.Quality of Life:-In this study, it refers to measures of the degree with which elderly are satisfied with their life in relation to four major concepts i.e. physical health, psychological state, social and environmental component altogether. It is measured by using QOL-AD

5. Nurse Led Cognitive Stimulation Program (NLCSP) It is systemically planned, comprehensive, multi-component intervention of total 14 session of cognitive stimulation activities .Each session of 60-75 minutes duration, conducted biweekly, for 7 weeks. The overall activities are based on unique theme, which include cognitive function stimulating activities, task, games, discussion with aims to refine and build the cognitive function in elderly.

Selected Community-It refers to those community area which are coming under the district Panipat, of five subdivision (Panipat. Israna, Bapoli, Samalkha, Madlauda) Haryana and selected for the study.

DELIMITATIONS:

The research will be delimited to:

1. The selected community of District Panipat , Haryana.
2. The Elderly population available at the time of data collection

CONCEPTUAL FRAMEWORK

A conceptual framework is a group of concepts and set of prepositions that spells out the relationship between them. Polit and Hungler (1999)It is direction tool cum guide to research and springboard for the generation of hypotheses. The conceptual framework in present investigation is based on **Health Promotion Model (HPM)** focused at developing and assessing the effectiveness of the **Nurse Led Cognitive Stimulation Program (NLCSP)** to build the cognitive strength and quality of life ultimately promoting mental health in elderly so to assist in successful cognitive aging. **Nola J. Pender proposed (1982, revised in 1996) Health Promotion Model** which constructed and counted to be a "Complement counterpart to model of health protection." The major components of the health promoting model are:

1. Individual characteristics and experiences
2. Behavior specific cognition and affect
3. Behavior outcome

REVIEW OF LITERATURE:

Review in study has been taken from various sources like journals, internet sources, electronic databases like Science direct, Google Scholar, Pub Med, etc. to gain insight and gather information about the selected problem under study.

The literature review has been structured under the following headings:

1. Studies related to problem of decline cognitive functions in elderly.

2. Studies related to efficacy of cognitive stimulation program

3. Studies related to effectiveness cognitive stimulation program on cognitive functions and quality of life among elderly

1) **Studies related to problem and prevalence of decline cognitive function in elderly.**

Singha, Domantas, Anna (june 2018) conducted a cross sectional investigation to identify gender variation in cognitive health among gold agers in India and also measures the impact of various factors which may create difference in male female in relation to the cognitive health.

They done this investigation on total 6548 participants and carry out it in six states in our nation during 2007–08. To identify the gender variation in various variables like household, health behavior, cognitive health, adjusting for individual and state-level variables. Declination of cognitive functioning found worse among in female than men. This study also verified and stated that the current knowledge of women's deprivation in cognitive health is central feature of sex difference in cognition among geriatrics in our nation[14]

John et.al (2017) undertook a systematic review and meta-analysis on problems due to decline in cognitive abilities in old occupants and the study synthesizes and reported the relation between decrement in cognitive status and affective problems in old age population. To sort out studies for correlation in anxiety and depression separately and fall in cognitive state an electronic search of Pub Med, Psyc Info, Cochrane, and science direct was carried out. Total 34 studies (n = 71 244) meets eligibility criteria as STROBE checklist was used among which thirty two research work measuring depression and five found measuring anxiety. Depression was significantly correlated with decrement in cognitive status in total of 34 multi-level meta-analysis. The Result of investigation also recommends need for regular assessment of the cognitive function as there will be particular risk of greater cognitive decline.[15]

Singh, Kumar and Kumar jitendra (2016) underwent a work to assess the variation in cognitive ability of gold agers and total7150 participants who are aged 50 and been participated. The result of investigation reported that cognitive points for all four variables are very less. Also, it was estimated that with the decrement in cognitive gain, the quality of life will be

reduced by seven percent among senior residents. Study claims a significant and direct relation between poor cognition and the quality of life of senior occupants in India[16]

Vassilaki et.al.(2015) Conducted investigation on older inhabitants who were in age 70-89 years, and 2,176 in total in which half were male and half were female and eighty seven percent were having two or more chronic health condition whom, they categorized as "cognitively normal" and also were registered in the Mayo Clinic Study of Aging. Cognitive decline was measured using psychological tests. A medical practitioner was also identified their mental and physical health and did their full neurological examination. Approximately for 7 years investigator followed the participants. Five eighty three person during this time period emerged as with mild cognitive impairment or dementia. The investigator also identified coupling of chronic factors like Arthritis and high blood pressure and others and stated that there were high aspect or risk in progression in cognitive problems for those who had 4 or more chronic problems[17]

Mohd et. al. (2015) underwent a community based single-time study on 225 rural elderly participants located with systematic random sampling. By using hindi version of mini mental status examination cognitive impairment among study sample were measured. This work revealed 16% prevalence of decline cognitive status and also a number of socio-demographic factor like age, gender, education, and marital status found to have a consequential relationship with prevalence of cognitive impairment. Furthermore, cognitive impairment was found correlated to various socio-demographic factors in approximately 1/6th of the gold agers. So there is the need to prioritize care and therapy for the vulnerable population related to stimulate their cognitive power byways like enhancing the present facilities and also by reflecting light of awareness to utilize these services.[18]

Peng et. al. (2012) conducted a population-based survey in town areas of Shanghai on 3,176 total home-living residents 55 years old or older as participants. Mini-Mental State Examination (MMSE) in Chinese language and direct one to one interviews as tool was utilize to identify sufferer with cognitive Impairment. And in the result of investigation, prevalence of 8.38 percent was found for both sex in which 9.21 percent for male and 7.93 percent for female respectively as total 266 people in which 102 male and 164 female were identified with impaired cognition. They also declare association of decrement in cognitive status onset with several risk factors, including factors on living styles, social factors, and genetic factor. This study confirmed that geriatric public in the Shanghai in China had a huge prevalence of Cognitive impairment.[19]

Giri et.al (2011-12) conducted a cross-sectional investigation on prevalence rate of decline cognitive function and its correlation of with depression in which total 538 senior age Chinese resident were participated and measured in terms of their cognitive abilities by utilizing Mini-Mental State Examination transformed in Chinese language and features of depression was identified by using geriatric depression scale having total 30 item. In examination, 12.6 percent prevalence of cognitive deterioration was found along with it female, who were poor in academics with growing age and depression was independent predictors for the cognitive impairment was revealed as output by utilizing multiple logistic regression analysis identified. Moreover, it can be said that cognitive destruction and depression go complementary in geriatrics. In the end they said that cognitive destruction and depression are prevalent in senior occupants having age ≥60 years**.** Hence, the vulnerability of cognition diminishment jump with the growing age.[20]

Weston et.al. (2006-09) underwent a single time investigation on498 Patients with 75.4 years as a mean age in which maximum were female of white race in the California Alzheimer's disease Research Centers. 392 samples with amnestic, and 106 non amnestic type mild cognitive impairment cases were assessed by using rating scale for dementia and Mini-Mental State Examination. It was identified that members with amnestic low level cognitive impairment were have trouble with memory task. The output of the investigation indicates with the there is mild functional deficits in person with mild cognitive decline and that also vary with category of decrement.[21]

2) **Studies Related to Efficacy of Cognitive Stimulation Program**

Niederstrasser et.al.(Jun07, 2016) conducted reviews on prevention of dementia and stated that geriatric population grows globally as well as prevalence rate of cognitive deterioration and dementia with growing age is also elevating at a higher speed. Furthermore, currently there is no such influential and magical medical treatment, which can decrease the risk and prevent it. But there is various hope with cognitive activity programs which found to be fruitful. This investigation suggested sundry basic cognitive intervention activities. And also evaluator discuss their practical uses of such program as individually and in group-based.[7]

Herrera and Martin, London School of Economics and Political Science May 2016wrotea report on cognitive Stimulation Therapy (CST): and summarized some validation related with its

practical cost. As per this report there are various of interventions or strategies to assist sufferer of dementia. In report they declare Cognitive Stimulation Therapy (CST) one of the best in aspects related to its practicability and feasibility. It is found to be one of the most economically suitable strategy. The National institute of clinical excellence -SCIE guidelines printed in 2006 recommended it as a group based program which is fruitful for sufferer person with mild to moderate dementia [22]

D'Amico et.al. (2015) Conducted a randomized controlled Trial on Maintenance Cognitive Stimulation Therapy: An Economic Evaluation on about two hundred thirty six elements having dementia in mild to moderate level and located with stratified sampling technique and for 7 weeks they given stimulation therapy and also for weekly added to usual care or usual care alone for 24 weeks. The result was moderate over 6 months, maintenance program assessed for its cost benefits and it was found that this program is not only offered cost-effective but also improve cognition and quality of life.[23]

Khan et. al. (2014) Conducted a review on cognitive stimulation therapy in which they basically focused on instructions, maintenance and application of its in clinical trials. The investigation has layer out that through out the globe, there are around 35 million people, who are victim of dementia, and more than fifty percent were having Alzheimer's disease and apart from this, neuropsychological symptoms of Alzheimer can be treated with 4 licensed medicinal treatments. In the list it has cholinesterase inhibitors, for treating sufferer of level mild to moderate and on the other hand, N-methyl-D- aspartate antagonist (memantine) authorized for treating the category from moderate to severe. The impact value of the two cognitive rehabilitation and cognitive training been analyzed by randomized controlled trials for people having Alzheimer. Cognitive stimulation as a non-pharmacological treatment intervention can also be used for victim having Alzheimer dementia of which the favorable one is cognitive stimulation therapy also supported by evidence. Also, its application and implementation was strongly recommended by RCT.[24]

Orrell M et.al.(2012) carried out a Randomized controlled trial to estimate impact and monetary benefits of cognitive stimulation program for person having dementia and was contrast with a treatment as regular in then on experimental group. In this intervention, a care giver delivered Cognitive Stimulation program sessions for thirty minutes, thrice a week for more than

25 weeks. The ADAS-Cog was used to weighted the cognition and QOL-AD for standard of life for individual suffering with dementia. Study result favored the impact of cognitive stimulation program [25]

Cheung, Peri and Barbara Fox ((2014**)** Carried out a pilot randomized controlled trial on thirty sample aged more than 50 years with objective to develop a protocol and to assess benefits of cognitive stimulation therapy on person having decline in cognitive abilities which can be even provided by expert volunteers on mental ability and standard of life in subjects having mild to moderate dementia. In this investigation measurement was done with Montreal Cognitive Assessment and intervention were given twice a week for 10 weeks total 20 sessions for 45mts by trained volunteer for analysis of investigation ANOVA test was utilized and also contrast in the two, the group with intervention and treatment as usual group were made, The outcome of the investigation supported Cognitive stimulation therapy and proved its economic advantages and also it has been accepted in total twenty four nation adding New Zealand[26]

3) Studies related to effectiveness Cognitive Stimulation Program on cognitive function and quality of life among elderly

Piras et.al. (2017) work out on efficacy of Cognitive stimulation therapy on vascular dementia in which, 35participants of senior age were allocate to one of two programs. In a group total twenty one subjects chosen to be a part of the cognitive stimulation program which include 14 session, while in the second ,active control group 14 member were participated in different intervention. Various factors like quality of life, mood, cognitive functioning, behavior, functional activities of daily living were identified. In outcome of study members in group who attended CST-IT program revealed maximum refinement in general cognitive abilities. Alzheimer's Disease Assessment Scale–Cognitive subscale and Mini mental state examination were research instrument used in the study. Also, positive inclination was identified in immediate working memory and perceived quality of life.[27]

Jennifer et.al. (2014) carried out an investigation on influence of cognitive stimulation therapy which was given once a week for dementia diagnosed individuals along with the auxiliary

effect of intensification of cognitive stimulation therapy with a training program for the care givers. In this 68 sample with dementia and their care givers with randomized controlled design with single blind, were gathered by using three community Memory assessment Services. In research, the samples were randomized to one of three conditions which were stimulation therapy along with training of samples, only CST ,or a waiting list control. Person with dementia at the baseline and the follow-up for fifteen weeks were administered and assessed for variables such as cognition, standard of life, and quality of bond with their care giver by standardized tool. In study, as intervention, 14 sessions, two times a week were given for 14 weeks. The outcome of the investigation indicated that there was no basic difference among all the three groups before and after the follow through, also the outcome of study stated no marked differentiation in People with dementia among the 3 categories on the basis of few kind of the outcomes.[28]

Woods et.al (15 February 2012) carried out a Cochrane review, which concluded fifteen trials having a total number of 718 subjects and outcome of investigation supported that stimulation of cognition has a valuable influence on the memory as well as thinking test scores of participants suffering from dementia. Data were meta analyzed and a clear, persistent advantage on functioning of cognition was found to be related to cognitive stimulation. Furthermore, on the basis of few researches, it was evident that the persons having dementia who participated, appeared to be having the refined standard of life and feeling of wellness. Authors from this Cochrane review, supported that cognitive stimulation refine cognitive ability in people having cognitive impairment and diagnosed with dementia.[29]

Wenisch et.al. (2007) carried out an investigation on cognitive stimulation approach for senior residents with mild cognitive impairment contrast with normal aged members. The results on 12 sufferer with MCI and 12 with normal cognitive function and group were given cognitive stimulation program. Comparison between the groups reflect effectiveness of the program. Study also concluded that CST is non-pharmacological interventions which is economical and easy tapering the rate of decline in geriatrics with cognitive deterioration.[30]

RESEARCH METHODOLOGY

Research Approach: Mixed Method Approach.

Research Design: Sequential Exploratory Design

In this design, qualitative data collection and analysis is followed by quantitative data collection and analysis.

Phase 1: Exploratory design

Phase 2: Development Phase

Phase 3: Randomized control study

Group	Pre test	Intervention	Post test 1 (Immediate)	Post test 2(after 3months)	Post test 3(after 6months)	Post test 4(after 1 year)
Experimental Group	O_1	X	O_2	O_3	O_4	O_5
Control Group	O_1		O_2	O_3	O_4	O_5

O_1: pre test before intervention

X: Nurse led Cognitive Stimulation Program, 60-75 minutes session each, 14 sessions biweekly, total in 07 weeks

O_2: post-test at the end of intervention

O_3: post test at 3 month after intervention

O_4: post test at 6 month after intervention

O_5: post test at 1 year after intervention

Variables

Dependent variable: Cognitive functions and Quality of life among elderly.

Independent variable: Nurse Led Cognitive Stimulation Program

Study Setting: This study will be conducted at selected rural community of district Panipat , Haryana

Population

Target Population: The target population of the study will be the Elderly (Age 60 years and above)

Accessible Population: The accessible population of the present study will be the elderly of selected rural community of Haryana.

Sample: Elderly belongs to rural community of district, Panipat of age above 60 years and above which are having decline in cognitive functioning as measure by MMSE.

Sampling technique: Multi Stage (Cluster) random sampling for phase first and Allocation concealment will be used for second phase of the study.

Sample Size : Sample size for first phase is based on data saturation and for second phase is 100

Sample Size

- Multi Stage (Cluster) random sampling to select village from Panipat district, Haryana
- Home to home survey will be done to identify elderly 60 years and above, cognitive assessment /measurements will be done. Prevalence rate from previous study utilized for first phase.

From Statistical department of civil district court of Panipat population census 2011, data of elderly were collected which is 216000 based on finite Proportion prevalence formula sample size calculated is 123.

Sample Size Phase II - 100

n = N*X/(X+N-1) Infinite Population Proportion

Where $X= Z@/2^{2} {}^{*}p*(1-p)/MOE^{2}$

$Z_{@/2}{}^{2}$ is the critical value of Normal distribution and @/2 is 1.96

MOE Margin of error (precision e.g +/-0.05)=0.10

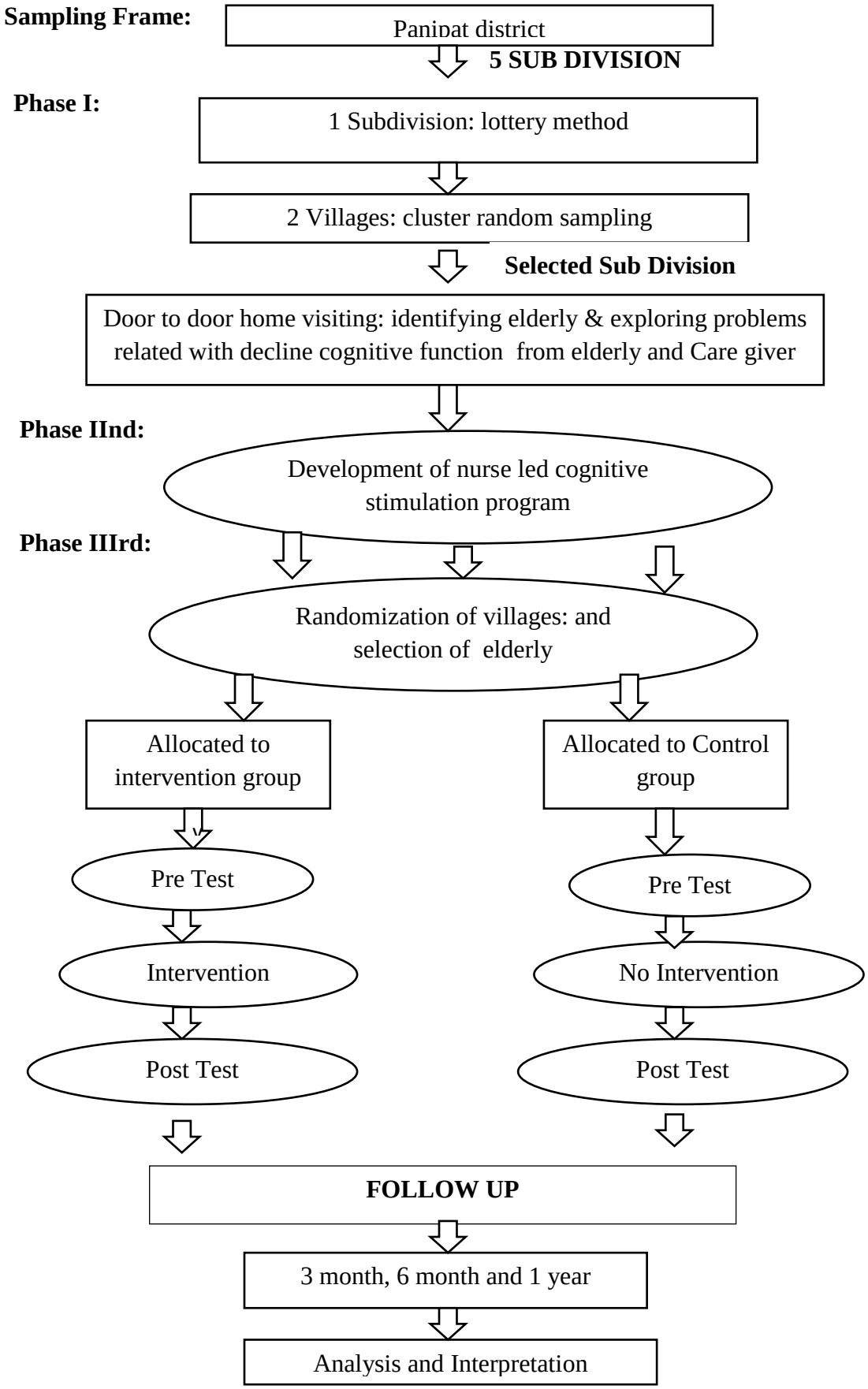
p is the sample proportion (Expected proportion)= 0.130

N is the population size 0.4345/0.0100= 43.45

Allocation of the sample will be done by Allocation concealment.

Considering the cognitive function as primary outcome for sample size calculation and reduction, from a previous study with good estimate of population effect size, it requires 43 subjects in each group to achieve 90% power at 5% level of significance. Assuming 10% lost to

follow up,47 subjects in each group is required. But it is possible to take 100 sample for the study by taking in mind power and effect size.


Sampling Frame:
Panipat district
5 SUB DIVISION
Phase I:
1 Subdivision: lottery method
2 Villages: cluster random sampling
Selected Sub Division
Door to door home visiting: identifying elderly & exploring problems related with decline cognitive function from elderly and Care giver
Phase IInd:
Development of nurse led cognitive stimulation program
Phase IIIrd:
Randomization of villages: and selection of elderly
Allocated to intervention group
Allocated to Control group
Pre Test
Pre Test
Intervention
No Intervention
Post Test
Post Test
FOLLOW UP
3 month, 6 month and 1 year
Analysis and Interpretation

Inclusion criteria

1. Elderly aged 60 years and more of both sexes
2. Elderly of selected community area and willing to participate in the study
3. Elderly who have cognitive functions (11-23 Scoring) according to MMSE.

Exclusion criteria

1. Elderly who are not present during the period of data collection and also who didn't complete the entire program.
2. Elderly having severe Psychiatric and physical illness
3. Elderly who are previously exposed to such interventions

SELECTION AND DEVELOPMENT OF TOOL

Tool consists of three sections:

Section A: Socio-demographic variables (Demographic variables:- Age, gender, educational status, marital status, type of family, caregiver, monthly income, living facility)

Section B: Semi structured interview schedule for exploration of problems faced by elderly and their caregivers due to alterations in cognitive functions (Focused Group Discussion)

Section C: Mini Mental Status Examination for measuring cognitive functions

The MMSE is a brief instrument with 30 items that is used to screen for cognitive impairment. It is also commonly used to estimate the severity of cognitive impairment at any given point in time and its Hindi version is also available. Scores on the MMSE range from 0-30. The test retest reliability of MMSE is found to be 0.8-0.95

Section D: QOL-AD tool for Quality of life

This tool has 13-items that cover components such as physical health, mood, energy, memory, living situations, family, friends, marriage, money, chores, fun, self, and life as a whole. The Hindi version of the tool is also available.

Section E: Nurse Led Cognitive Stimulation Program. It is systemically planned, intervention of total 14 session of cognitive stimulation activities. Each session of 60-75 minutes duration, conducted biweekly, for 7 weeks. Each session has unique theme and activities which include

cognitive functions stimulating activities, task, games, discussion with aims to refine and build the cognitive functions in elderly.

VALIDITY OF TOOL

The content validity of the tool will be confirmed submitting it to various experts regarding relevance of the items. The final tool will be found complete in terms of content and clarity of expert suggestion.

PILOT STUDY

Pilot study will be conducted on 10% of total population

RELIABLITY OF TOOL

Reliability will be checked by split half method.

ETHICAL PERMISSION

1.Permission in writing will be taken from Dean, Himalayan College of Nursing, Swami Rama Himalayan University, Dehradun.

2. Written permission will be taken from Ethical clearance committee of Institutional Ethical clearance committee of SRHU, Jolly Grant, Dehradun.

3. Written permission will be taken from The Block Officer of district Panipat, Haryana.

4. Informed consent will be taken from each study sample.

5. anonymity and confidentiality of study samples will be maintained throughout study.

DATA COLLECTION PROCEDURE

After obtaining formal administrative approval from the concerning authorities and informed consent from the samples the investigator personally collects the demographic data. After which data will be collected in the following two phases;

Phase1: Pre-test will be conducted to assess the cognitive functions and quality of life among the elderly in experimental and control group. A Focused group interview method will be followed for the collection of background information and problem related with decline cognitive functions in elderly and by their caregivers. Planned Nurse led cognitive stimulation program will be

developed after reviewing the literature seeking opinion from expert and also with knowledge from the field experience.

Phase 3: After the completion of cognitive stimulation program investigator assess the post-test level of cognitive functions and quality of life by using the same questionnaire in elderly of experimental and control group. Three follow up will be done first after three months of training, second and third after 6 and 1 year after the training. Intervention program to control group will be given after the study first follow up.

PLAN FOR DATA ANALYSIS The data gathered will be analyzed by utilizing the descriptive and inferential statistics.

References

1) Giridhar, G.(2017). Caring for our elders: Early Responses. Indian aging report. UNFPA

2) Benjamin, Sadock, James, Virgina, Sadock Alcott& Pedro, Ruiz MD: Comprehensive Text book of Psychiatry.LWW publication, 2 (9), 3932-3940

3) Townsend, Mary, C: Psychiatry Mental Health Nursing. Jaypee publication, 7, 830-840

4) Louise, Shives, Rebraca: Basics concepts of Psychiatry Mental Health Nursing. LWW publication, 8,450-454

5) Kernisan, Leslie. (2018).Cognitive issues in elderly. Cognitive impairment in aging

6) Daniela, Mapelli, a, Elisa, Di, Rosa, a, Rosaria, Nocita, b, Donatella, Sava, band, b,Centro, Serviziper, Anziani, Monselice.(2013).Cognitive Stimulation in Patients with Dementia:Randomized Controlled Trial. Dementia and geriatric cognitive disorder, 3.

7) Niederstrasser, Nils, Georg, Hogervorst, Eef, Giannouli, Eleftheria and Bandelow, Stephan (2016): Approaches to Cognitive Stimulation in the Prevention of Dementia. Journal of Gerontology & Geriatric Research.

8) Corr,Kate.(2018).What is Cognitive stimulation therapy? https:/www.unforgetable.org/blog/what-is-cognitive-stimulation-therapy/therapy?

9) A,Spector, L, Thorgrimsen, B, Woods, et al (2003). Efficacy of an evidence-based cognitive stimulation therapy programme for people with dementia: Randomized controlled trial. Br J Psychiatry, 183, 248–54

10) Census report District Panipat:https://www.census2011.co.in/census/city/37-panipat.html

11) Giri, Mohan, Chen, Tian,YuWeihua,and Lü, Yang (2016):Clinical Interventions in Aging People's Republic of China.

12) Sengupta, Benjamin, Singh, Yashpal, Grover Ashoo.(2014**).** Prevalence and correlates of cognitive impairment in a north Indian elderly population.WHO South-East Asia Journal of Public Health, 3(2), 135-143

13) Elliott, Amanda, Floetke, Horgas, Ann,L. and Marsiske,Michael.(2008).Nurses role in identifying mild cognitive impairment in older adults. National institute of health, 29(1), 38–47

14) Singha, Prashant,Kumar, Jasilionisb, Domantas,c , Oksuzyanb, Anna.(2018).Gender Difference in Cognitive Health among Older Indian Adults:A CrossSectional MultilevelAnalysis.SSM-Population Health,5,180-187

15) John, A., Patel, U., Rusted,J., Richards, M. and Gaysina, D.(2018).Affective problems and decline in cognitive state in older adults: A systematic review and meta-analysis (Psychological Medicine).Psychological Medicine, 1–13.

16) Singh, P., Govil, D., Kumar, V. et.al. (2017).Cognitive Impairment and Quality of Life among Elderly in India. Applied Research Quality Life,12(4), 963–979

17) Vassilaki, Maria, MD et.al.(2015).Association between functional performance and Alzheimer's disease biomarkers in individuals without dementia. Journal of the American Geriatrics Society, 66(12)

18) Maroof, Mohd, Ahmad, Anees, Khalique, Najam, Ansari, M, Athar,Shah, M, Salman, Eram, Uzma.(2015).Prevalence and Determinants of Cognitive Impairment among Rural Elderly Population of Aligarh. National Journal of Community Medicine, 3(7), 189-192

19) Zhuang, Jun-Peng, Etal.(2012). Cognitive impairment and the associated risk factors among the geriatrics in the Shanghai urban area: a pilot study from China. Translational Neurodegeneration, 1, 22

20) Giri, Mohan , Chen, Tian, Yu, Weihuaand, LüClin,Yang.(2016). Prevalnece and correlates of cognitive impairment and depression among elderly people in the world's fastest growing city,Chongquing,people's republic of China.Clinical Intervention in Aging, 3(11), 1091–1098

21) Weston, Andrea,Barton, Cynthia, Lesselyong, Julia and Yaffe, Kristine.(2012).Functional deficits among pateints with mild cognitive impairment. National institute of health,7(6), 611–614

22)Comas-Herrera, Adelina and Knapp, Martin.(2016).Cognitive stimulation therapy(CST):Summary of evidence on cost effectiveness.NHS England,125

23)Amico,D. Et.al. *(*2015).Maintenance Cognitive Stimulation Therapy: An Economic Evaluation within a Randomized Controlled Trial. Journal of the American Medical DirectorsAssociation, 16(1), 63-70.

24) Khan et al**.** (2014). Cognitive stimulation therapy: training, maintenance and implementation in clinical trials. Journal Pragmatic and Observational Research, 3, 15-19

25)Orrell M.Et. al. (2012). Individual Cognitive Stimulation Therapy for dementia (iCST): study protocol for a randomized controlled trial, Pub Med, 13:172

26)Cheung, Dr Gary, Peri, Dr, Kathy, Barbara, Ms, Fox. (2014). The effect of individual Cognitive Stimulation Therapy delivered by trained volunteers on cognition and quality of life in people with mild to moderate dementia: A pilot randomized controlled trial.TePou o TeWhakaaro Nui,1-41

27)Piras, Et.al.(2017). Efficacy of Cognitive stimulation therapy for older adults with vascular dementia. Dement Neuropsychological, 11(4), 434-441

28)Cove, Jennifer, Et.al. (2014). Effectiveness of weekly cognitive stimulation therapy for people with dementia and the additional impact of enhancing cognitive stimulation therapy with the carer training program. Clinical intervention in aging, 9, 2143—2150.

29**)**B, Woods, E, Aguirre, AE,Spector, M, Orrell.(2003).Efficacy of an evidence based cognitive stimulation therapy program for people with dementia. British journal of psychiatry, 183,248-254

30)E, Wenisch, Et.al.(2007).Cognitive stimulation intervention for elders with mild cognitive impairment compared with normal aged subjects: preliminary results. Aging clinical and experimental research, 19(4), 316-22